

VENEREAL DISEASE IN WEST AFRICA

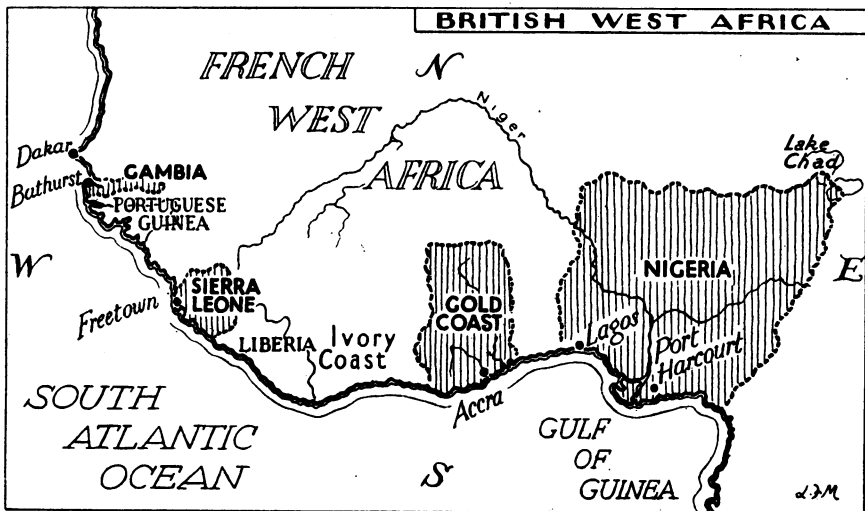
VENEREAL DISEASE IN BRITISH WEST AFRICA*

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British West Africa is not one territory, but four—Gambia, Sierra Leone, Gold Coast and Nigeria—and each is separated from the others by strips of French West Africa and other territories. The distance from Gambia to Nigeria is as far as from London to Gibraltar, and the four colonies together have an area of 500,000 square miles, Nigeria; the largest, with 372,000 square miles, being bigger than any European country except Russia. The total populations are, in round figures, as follows: Gambia 200,000, Sierra Leone 1,770,000, Gold Coast 3,790,000, and Nigeria 20,580,000. About 3,000 British officials of all services are employed in the administration of the four territories, one British official to nearly 9,000 Africans.

MAP OF BRITISH WEST AFRICA



The map is drawn to the scale of 550 miles=1 inch.

During World War II an army was created in West Africa to furnish two divisions for the Burma front; during the time under review there were about 50,000 African troops in the four colonies engaged mainly in static and training duties. These were looked after by about 6,000 Europeans, so it will be appreciated that the white population of the colonies was increased very considerably as a result of the war, and that in the Army the number of Africans per doctor was of a very different order from the ratio for the civil population.

History of the four colonies

Although Hanno the Carthaginian was reputed to have reached Sierra Leone about the year 450 B.C., these colonies, as far as present civilization is concerned, were discovered by the Portuguese in the fifteenth century. Prince Henry of Portugal—Henry the Navigator—sent his caravels annually along the West Coast of Africa on voyages of exploration and profit. The Gambia was reached in 1455 (Gray) and the other colonies in order, Nigeria receiving its first visit in 1483. The climate with its wet season was well known, therefore the outward journey was made between September and January and the return always before May. The coastal forest belt restricted inland exploration, and the rich trade in gold, ivory, pepper

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and civet cats was confined to the coastal regions. In order to regulate the trade, trading stations were set up and many of these were fortified into castles, some of which are still standing.

Rival nations were soon on the scene and were concerned as much with piracy as with trading on the actual coast. Spanish, British, French and Dutch were all involved and, with the gradual opening up of the New World, the slave trade became the most profitable occupation. This trade had never been neglected by the Portuguese during their long spell of discovery in West Africa, the first slaves having been sent back from the Canaries to Portugal in 1482. Hawkins took the first cargo to be carried in a British ship in 1562. The Dutch arrived on the coast in the last decade of the century and soon ousted the Portuguese. For the next 200 years there was a great international rivalry in shipping black men across the Atlantic. English, Dutch, French, Germans, Danes and Swedes were all concerned, and the white man's interest in West Africa was restricted to the fostering of intertribal disputes and the collection of slaves. By degrees Britain acquired about two-thirds of the slave trade. She had 150-200 ships engaged in the task, and an annual average of 40,000 men were shipped, mainly to Jamaica, where they were sold and a large re-export business was carried on. In 1791 she carried 74,000 slaves of whom not less than 34,000 went to Jamaica for re-export to other nations. Cruelty was terrible. Contemporary writers described the tracks to the West African coast as being lined by skeletons of slaves who had gone before. About 25 per cent died during the Atlantic crossing, sometimes as many as 80 per cent, and sick slaves were occasionally jettisoned overboard (Mackenzie-Grieve). However, on the other side they fetched, in the later years of the trade, between £50 and £100 each, and so the profits were great.

A humanitarian movement started in Britain before 1772, the year that Lord Mansfield gave judgment that escaped slaves in Britain were subject only to British law and therefore that slavery as such could not exist in Britain. This led to the colonization of Sierra Leone, for, in 1787, a ship containing liberated slaves plus 60 prostitutes (who, for some strange reason, were sent with them) took its cargo of 411 souls to the promised land. They landed just as the rains were about to begin and by the following March only 130 were still alive (Mackenzie-Grieve). Meanwhile the slave trade continued as before, and there was the odd situation at Freetown of the new colony of the liberated, with the old business of slaving continuing with no loss of vigour at Bunce Island only a few miles up the river. It took 30 years before Wilberforce was able finally to get his Bill through Parliament, against the opposition of vested interests and of many people who benefited directly or indirectly from the slave traffic. The slave trade was made illegal in 1807.

This was not popular, however, either with other nations or with the African chiefs, who welcomed the profits from selling their prisoners; as far as Africa was concerned it was "business as usual". However, Britain now took on a creditable role and for the next 60 years the Royal Navy maintained a patrol off the coast and over 500 slave ships were brought into Freetown and their cargoes liberated. The trade finally ended in the 1860's, when the United States of America abolished slavery.

As soap became a commercial product much in demand in Europe, so palm-oil revived trade on the West Coast, and during the nineteenth century the Germans, the French and the British were the nations most concerned with this part of the world. In 1884 it was agreed at Berlin that the claims of any one power to any part of the coast where its interests were predominant, together with any part of the interior which it could control, would be agreed to by the others. Britain then had clearly defined claims on the coasts of Gambia, Sierra Leone, Gold Coast and Nigeria, while the French showed laudable opportunism in rapidly linking their coastal strips with the interior and effectively preventing further expansion on our part. Only in 1900 were the frontiers finally established.

At that time West Africa was a grim place for settlers (Scott). Muddy creeks and lagoons, heat, humidity, swamps and steam, together with disease, attracted

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only the hardy or the desperate. Among the mangrove swamps or in the thick forest they built houses on wooden piles ; yellow fever and malaria earned for the coast the name of the " White Man's Grave ". (Incidentally, one of the districts of Bathurst still bears the name " Half-Die ".) Meanwhile in the bush around them tribal warfare, fetish murder, human sacrifice, cannibalism and ju-ju superstition were rife.

Since the beginning of the present century, small handfuls of Britishers, often with little money to spend, have wrought tremendous changes in government, agriculture, education, trade, health and Medicine ; if nothing else had been achieved during these fifty years, the territories are, at least, no longer the " White Man's Grave ". The death rate in 1938 for white officials in West Africa was 8·9 per 1,000, and only 6 of the 29 deaths recorded by the Crown Agents for the Colonies were due to tropical diseases.

Present-day conditions

With a gradual stabilization of the health of the white man, attention has been concentrated in greater detail on that of the black. In addition to the more ordinary diseases with which to contend, there are smallpox, dysentery, cerebro-spinal fever, plague, typhus, rabies, leprosy, yellow fever, malaria, trypanosomiasis, filariasis, blackwater fever, bilharzia, infestation with intestinal worms, yaws and dietary deficiencies. These are all serious problems for the Colonial Medical Services, and somewhere into this long list there have to be fitted tuberculosis and venereal diseases.

As has been pointed out in a leading article in the *British Medical Journal*, the Colonial Medical Service is hopelessly understaffed for the task in hand. In Nigeria, for example, there is at present only one doctor for 175,000 people, and in some areas one doctor for 1,000,000 people. Therefore, if any remarks which I may make should appear to be critical, they must be judged only in relation to these facts. Enormous strides have been made and, if the present state of affairs should appear unsatisfactory, it is to the future that we should look with provision for men and money, rather than point with recrimination at the past. There are some well-built towns, good roads, telegraphs and wireless, a reasonable sprinkling of airfields, and good hospitals, although the fever hospitals are still in a very elementary state. Even now, however, after four centuries of trade, there are still vast areas of swamp and forest of which little is known, and ju-ju superstition, fetish murders, human sacrifices and even cannibalism still persist. It is against this background that the statements on venereal diseases which follow must be assessed.

So far as my own experience is concerned, it relates to the period from the autumn of 1943 to the summer of 1945, during which I was stationed in Accra in the Gold Coast. I was privileged to undertake tours of all army medical establishments and of most of the military units throughout the four colonies, some of them on several occasions ; whenever opportunity offered, contact was made with the civil and other services.

Incidence of venereal disease

The data given refer in the main to the African. Venereal disease in Europeans, apart from cases of lymphogranuloma inguinale, ran the text-book course as in Great Britain. The incidence of venereal disease among Europeans (although very large in certain military units, in which the annual rate over a period might reach 40 per cent) varied between 2·2 per cent per annum in the over-all figures for the Gambia, 4·6 per cent in Sierra Leone, 8·5 per cent in the Gold Coast and about 10 per cent per annum in Nigeria. Whereas these rates are not abnormal considering the conditions and the risks that are run, they do perhaps reflect the relative prevalence of venereal disease in the four colonies.

On the other hand, the rate of incidence of venereal disease in the West African native troops was very high indeed. During the period under review, in native troops in Nigeria, for example, the gonorrhoea rate alone exceeded 60 per cent per annum ; the venereal disease rate in the Gold Coast was 50 per cent per annum, in Sierra

Leone 28 per cent, and in the Gambia as low as 12 per cent. Thus the venereal diseases rates of the four colonies are in the same order as the figures for area of territory and size of population. This same trend is mirrored in the statistical health returns for civilians of the four colonies both as to in-patients admitted and as to out-patients treated, as published in the *Annual Medical Reports* for 1943 of the several colonial administrations.

Medical authors have quoted even higher figures. Blacklock¹ in Sierra Leone in 1930 found 46 per cent with a recent history of or suffering from gonorrhoea in over 3,000 persons examined, whereas in French territory north of Nigeria, at Fort Lamy, 80 per cent are said to suffer from syphilis (Worthington).

In general gonorrhoea is by far the most common disease. Judging from the numbers attending my own clinic at Accra, gonorrhoea was 20 times, soft sore (chancroid) 4·3 times, and lymphogranuloma inguinale 3·3 times more common than syphilis. It is perhaps worthy of note that in 1944 the wards attached to this clinic admitted 75 per cent more cases of venereal disease than did those of all the civil hospitals throughout Gambia, Sierra Leone and the Gold Coast in 1943.

Provision of treatment

The Army on the whole was well organized to give adequate treatment to its personnel and render them free from infection. The main difficulty was that the soldiers were constantly being reinfected and that the corresponding facilities to treat the women were virtually absent. Although there were venereal diseases clinics attached to the civil hospitals at Freetown and Accra, they were only in the process of opening in Bathurst and Lagos, and these small beginnings made but little impression on the whole problem. For example, if the total number of the in-patients and out-patients of the principal colonies—Sierra Leone, the Gold Coast and Nigeria—are computed against the populations, we find that, although some 6·07 per cent of the population receive medical attention in a year, only 0·23 per cent do so on account of venereal disease. Most civil hospitals have a venereal diseases ward for males, occupied by cases of penile sore and lymphogranuloma inguinale. There are usually no dark-ground condensers; patients with sores receive intravenous neosarsphenamine until they are healed, but little after-treatment is given. The women, as a rule, are admitted to the gynaecological wards only after complications have developed. Staff shortages are very acute. The civil authorities are well aware of the position, but they feel that the measures required to tackle the problem are at present beyond their powers and that the other diseases listed above should have pride of place.

Gonorrhoea and its treatment

The disease runs a similar course to that seen in the United Kingdom, although in West African soldiers repeated attacks were more frequent and the incidence of complications seemed to be less great. Between 80 and 90 per cent of patients responded to adequate dosage of the sulphonamides but the sulphonamide-resistant cases were very resistant indeed; these patients reacted very well to penicillin. The numbers were so large that out-patient treatment had to be organized at the military units concerned.

Sulphonamide treatment.—Prior to December 1943 the standard treatment in the Army in West Africa, which had been copied in many civil centres, consisted of 4 daily intramuscular injections of 1 gramme of sulphapyridine suspension in water. Many doctors claimed remarkable cures with this treatment, although some admitted that they might have been due rather to the pyrexial response than to the amount of the compound used; all testified that the sore buttock which resulted was “a grand deterrent for the patient to catching the disease again”. The main virtues of the method were economy in the amount of sulphapyridine used and the fact that one was sure that the patient did indeed receive his treatment. One of the disadvantages of giving oral tablets was the fact that, unless they were crushed and administered to the patient by a medical officer, they would almost certainly not be swallowed but be sold to the natives in their towns or villages for

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a shilling a tablet. In one civil prison, prisoners were found to be making tablets of chalk and stamping them with the magic initials, "M & B". As a result of this, no military hospital and few civil hospitals would give sulphonamide tablets to out-patients; this fact accounted in a large measure for the popularity among medical officers of the injection therapy.

On the other hand, previous experience with this intramuscular treatment in Great Britain had not been impressive. The blood sulphonamide concentration seldom exceeded 1 milligramme per cent in the African, and only 30–40 per cent of cases cleared up in any of my own series; in addition, the number of buttock abscesses which developed in patients in the Command, although not great, was sufficient to give one cause for thought. The difficulties were overcome by adopting, as a standard oral treatment in all military camps, 6 grammes of sulphathiazole given in one dose daily for 3 days. Sulphadiazine would also serve in the same dosage, but sulphapyridine was decidedly unsuitable on account of renal complications which resulted from its use. Often the sulphathiazole was given in a watery suspension and always by the medical officer concerned. Thus the danger of thieving was eliminated and the medical officer finished his treatment for the day after one visit.

It was arranged that the patients afterwards received 12 pints of water daily. The incidence of haematuria was extraordinarily small—very much less than the haematuria rate for the orthodox sulphapyridine course—and out of the many thousands of patients who had been treated by this means up to July 1945, not one case of anuria had been reported. Failures were sent to the nearest military hospital, where, in the later part of my stay, they received penicillin, but I understand that its use has been discontinued recently. The success rates claimed varied generally between 80 and 90 per cent. One military unit had treated 295 cases in 3 months with only 5 failures. Thus there is obviously not any truth in the rumour that the West African gonococcus is sulphonamide-resistant.

As a result of these measures there was a great decrease in the number of gonorrhoea cases admitted to hospital. In one, for instance, there were only 90 admitted in a quarter, compared with 535 in the same quarter of the previous year.

Treatment with penicillin.—At hospitals, penicillin therapy, because of the shortage of trained staff and constant danger of theft, was difficult to organize in many places. At my hospital I used for resistant cases 100,000 units in a saline solution, followed 3–4 hours later by 100,000 units in peanut oil and beeswax. Although the penicillin estimations of the blood showed little penicillin to be present after 11 hours and none at all after 15 hours, clinical results, at least, were useful, there being only one failure in about 35 cases treated. In later months no patient was "boarded" out of the Army from this hospital on account of gonorrhoea.

Mass treatment.—It seems to be likely that, when the venereal diseases situation on the West Coast is finally faced, whole villages and towns will have to be tackled by an army of doctors and orderlies, giving one-day penicillin treatment to all and clearing the colonies area by area. There would be a difficulty even then, namely, to decide the age at which the inhabitants should receive such treatment. I treated a boy aged 7 years (the son of a local brothel proprietor) with acute gonococcal urethritis; moreover, in parts of Nigeria rectal gonorrhoea was not uncommon in very young virgins. Apparently the manner in which this infection was contracted did not bring about a reduction in value of a girl's virginity in the marriage market. I met with no case of rectal gonorrhoea in an African soldier.

Syphilis and yaws (treponematoses)

Now we reach that vexed question of syphilis and yaws—a question that has divided the minds of the medical profession ever since the two diseases were recognized. Before discussing the relationship of the two diseases, I propose to consider them individually.

Syphilis

Syphilis—by which I mean an infection usually venereally acquired which, in its early stages at any rate, runs a similar course to that observed in the United Kingdom—is, in my opinion, more common than is generally supposed in all the four colonies where yaws is endemic and much more so in Northern Nigeria where yaws is less common. In the past, diagnosis in very many centres has been clinical and serological only; as a result, without dark-ground examinations, many cases of syphilis have been labelled “soft sore” or “soft sore and yaws”, depending upon the serological reaction. As a generalization, it may be said that syphilis is more common around the big coastal towns and in Northern Nigeria, although no army unit was immune, and the other venereal diseases everywhere were rife. It would be dangerous to assume, without proper diagnostic examinations, that syphilis was uncommon elsewhere. Nearly all the civil hospitals which I visited had no dark-ground microscope available and, up to the early months of 1945, in the Army, too, the routine of doing repeated dark-ground tests in all cases of sore in Africans was very far from general; therefore any figures relating to the incidence of primary syphilis in West Africa should be examined with caution.

Congenital syphilis.—Although my opportunities for examining children were slight, it must be admitted that the numbers of cases of congenital syphilis appeared to be very small indeed, although the stillbirth rate was high. (It was 115 per 1,000 in the Gambia in 1943.) Blacklock found one case only of Hutchinson's teeth in over 3,800 individuals examined in Sierra Leone in 1930.

Primary syphilis.—In my own clinic at Accra about one-sixth of the cases of penile sore were due to syphilis. Generally the amount of syphilis recorded as present was in proportion to the number of dark-ground examinations. The dark-ground test was the only sure way of diagnosis in the Gold Coast, as this is an area of endemic yaws, and often as many as one-half of the number of the blood specimens examined in a week gave positive reactions.

Secondary syphilis.—Secondary syphilis was also common, although the less exuberant rashes were often difficult to recognize. Generalized adenitis is frequently present in the West African negro, and palpable epitrochlear glands do not have the same significance as in a European. Condylomata lata seemed to be rare in some areas; I saw only 2 cases in 20 months at Accra, although I saw several whilst touring around. Pustular syphilides were not uncommon. Here again yaws created considerable difficulty, especially in cases of papular eruption with no suitable lesions for dark-ground examination and in which there was a positive blood test.

Tertiary syphilis.—This, too, was no rarity in the Army. The lesions seen took the form of gummata in the pharynx and elsewhere, aortic aneurysms and meningo-vascular cases. Confusion with the last-named might arise with trypanosomiasis as positive blood tests were often discounted as being due to yaws. Late syphilis is most common in Northern Nigeria. In all the colonies together, some 45 deaths occurred from aortic disease out of some 227,000 recruits (Findlay); however, one seldom saw cases of clinical tabes dorsalis or of general paralysis of the insane. As the latter manifestation in the African may be confused with trypanosomiasis, with other mental disease or with normality, a detailed analysis of patients in mental asylums would be interesting.

Treatment of syphilis

A common treatment for civilians with syphilis (often after depending upon a Kahn-test diagnosis only) was in-patient administration of neoarsphenamine until the sore had healed; it was considered to be impracticable to continue after this. Army treatment was much the same at first, but it was in time organized, in the absence of penicillin, on a three-course arsenic and bismuth scheme. Complications resulting from arsenic were surprisingly uncommon. I had no case of arsenical dermatitis during my tour although I did see the condition elsewhere. “Arsenical” jaundice was similarly very rare, there being no instance of 100-day jaundice

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arising in my wards in 20 months, although transmittable infective hepatitis was present in the department for a great part of the time (Findlay and Willcox²). Syringes were always boiled before any intravenous injection was given. Reactions, when they did occur, were often complicated by malaria, sickle-cell anaemia or other disease, and were of a complex nature (Willcox¹). Distilled water did not keep well in the Tropics and had to be prepared freshly each day. Febrile reactions occurring after intravenous injections were frequently due to neglect of this precaution and were often confused with malaria.

The defaulter rate was high. The treatment of choice for syphilis in the African is obviously some short-term scheme of penicillin and arsenic. However, although penicillin was used with success in a limited way during my stay on the West Coast, I understand that its use for native troops has since been stopped on the grounds of insufficient supply.

Yaws

The primary or "mother yaw" is a small, slightly raised granuloma, occurring usually on the exposed parts, and is contracted as a result of close contact or by infection carried by flies. The primary stage may not differ in kind from the secondary framboesia which follows later. The secondary manifestations are at first scaling macules (yaws trash) or papular in type, but later typical framboesiomata appear. *Spirochaeta pertenuis* is easily recognized in the lesions. These yellow crusted lesions are usually seen in the young, under 9 years of age, and many such cases were seen in the village children in the Gold Coast.

Chambers calculated that in his series in the West Indies, 93 per cent of patients gave a history of close contact. Flies as an alternative method of spread have been incriminated for over 75 years, and it was demonstrated experimentally as a possible one by Kumm in 1934. In West Africa Purcell in 1933 had treated over 5,000 cases of yaws in the northern territories of the Gold Coast in a tribe in which extratribal relationships were never practised. There was neither gonorrhoea nor clinical syphilis. I wonder whether or not this is the same to-day.

In the Army one rarely saw a primary yaw. I saw one which had occurred on the site of a vaccination done some three weeks previously. Secondary yaws was more common although typical framboesiae were by no means always seen. A macular or papular rash in a patient with a positive Kahn reaction was a common event and it was difficult to decide between yaws and syphilis.

The commonest of the later manifestations seen in the Army were so-called "crab" yaws (many cases of fissured feet were diagnosed as this), yaws ganglia, periostitis, juxta-articular nodes, circinate skin lesions (ringworm yaws) and synovitis. Thus, as a rule, late yaws in the Army was an unspectacular disease and, as so many patients had positive serological reactions, the diagnosis of yaws was apt to cover many odds and ends. Goundou and gangosa were infrequently seen in the Army but do exist on the West Coast.

In the treatment of yaws, neoarsphenamine (N.A.B.) is specific and bismuth also is curative. Findlay, Hill and Macpherson in 1944 showed that penicillin, too, had a dramatic effect in yaws, a fact which I can confirm.

West Africa and the origin of yaws and of syphilis

If one inclines to the view expressed by Buret, and more recently by Whitwell, that syphilis has been with us since time immemorial, there is little that is significant in West African history. However, for the many who hold the so-called "Columbian" view, as well as for the minority in the United States of America who think that syphilis was brought there from Europe, there is an interesting side. Let us consider the relevant dates.

- 1433 Slaves first carried to Portugal from the Canaries.
- 1443 Slaves first taken to Portugal from Isle of Arguin.
- 1455 Portuguese discover the Gambia.
- 1462 Portuguese discover Sierra Leone.
- 1472 Portuguese discover the Gold Coast.
- 1484 Portuguese discover Nigeria.

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1493 Columbus returns from West Indies.

1495 Outbreak of syphilis at Naples.

1502 First slaves sent to West Indies (Butler ; Chambers).

The inclusion in this series of dates of the voyage of Columbus draws attention to the occurrence of syphilis in Spain after his return from the West Indies and to its subsequent spread through the army of Charles VIII of France, resulting from contact with the Spanish mercenaries at the siege of Naples in 1495 (Abraham). As the other dates show, however, slaves had been imported earlier into Portugal, and a certain number of these must have been re-exported to Spain ; others were acquired by the Spaniards through illicit trading with Guinea or by acts of piracy on the high seas, more than 50 years before Columbus returned. Therefore subscribers to the "Columbian" view must also assume not only that syphilis was absent in African natives at that time, but also that yaws and syphilis are two diseases ; for if yaws were syphilis, it would certainly have appeared in the Iberian Peninsula as an infection derived either from the slaves or from the large numbers of Portuguese sailors who voyaged to and from the coast.

These figures also refute the claim that syphilis was taken into the New World by slaves. Some 8 years had elapsed after Columbus's initial voyage before slaves were taken to Hispaniola. However, it will be appreciated that, as a dualist outlook on the yaws-syphilis question is essential to the "Columbian" theory of the origin of syphilis, the attempt to prove yaws and syphilis to be the same disease is often made by its opponents (Butler). As far as the history of the disease in West Africa is concerned, there seems to be general agreement that yaws was present there before the arrival of the Portuguese and that this disease came from inland, the Sudan, and possibly from further east (Hermans). The introduction of syphilis into East Africa, too, seems to have been attributed to the Arabs from the north, rather than to the Portuguese invaders (Worthington).

Historically, the diseases, yaws and syphilis, are difficult to separate. The first clinical description of syphilis was given by Durer in the year 1496. Yaws, however, was not described in unequivocal terms until 1629, and then by Bontius, returning from the Dutch East Indies (Hermans).

Since the first descriptions were given many writers of great repute, like Sydenham in 1679, have held that the two diseases were the same. It was not until 1737 that yaws received first mention in North America, when Brickell noted that yaws was similar to lues venerea, was seldom venereal, was not cured by mercurials and was brought over from Guinea by the slaves (Hermans).

When the Medical Society for the Study of Venereal Diseases was addressed in 1927 by Sir Philip Manson-Bahr and Dr. H. S. Stannus on the subject of yaws, the former speaker said : "Thus has Fate decreed that the gift of syphilis from the new world to the old, consequent upon the Spanish Conquest, should be paid in kind some hundred years later by the exportation of yaws from Africa by Negro slaves."

The differences between the two diseases are well set out in the standard works (Chambers ; Hermans). The main arguments as to there being two separate diseases are as follows.

- (1) The historical one mentioned above.
- (2) Yaws is confined to the Tropics, although the spirochaetes are indistinguishable, as are certain trypanosomes.
- (3) Yaws is mainly an extra-genital infection of children and is never congenital.
- (4) The primary sore is not indurated and indolent buboes are uncommon.
- (5) The framboesoma is the typical lesion of yaws ; secondary yaws often causes itching and never affects the skin of the skull or the mucous membranes or causes alopecia.
- (6) In yaws the soles of the feet are often affected in a painful manner.
- (7) Internal organs are not affected and there are no comparable lesions to those of tabes dorsalis and general paralysis of the insane.
- (8) Gangosa and goundou are found only in yaws areas.
- (9) Yaws responds more quickly to treatment.
- (10) Finally, the one disease does not confer immunity to the other.

These arguments have been given a critical survey by other writers (Blacklock² ; Butler) and the facts still remain, that the bacteriological and serological findings

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in the two diseases are similar and that there is no way of distinguishing them by laboratory testing; also that the alleged differences are of degree only and that there are no signs of yaws that cannot at some time be produced by syphilis. It should be noted that there is complete agreement that yaws is usually a non-veneral extra-genital infection of native children in the Tropics. Before a strict comparison can be made, a comparable group of native children in the Tropics, who have acquired syphilis extra-genitally, must also be studied.

To the already very swollen literature on the subject of yaws-syphilis immunity is added the record, that in the Gold Coast in 1945, Findlay and Willcox¹ successfully inoculated with primary syphilis a man whom one of us had treated for yaws some years previously, and who had a positive blood test at the time of the experiment.

Soft sore (chancroid)

This condition is extremely prevalent. The number of cases seen was 4.4 times as many as all those of syphilis in my clinic at Accra, where syphilis was relatively prevalent. Dmelcos vaccine was only occasionally available and was therefore not used in any great amount.

If the basic rules are applied—that is, 3 negative dark-ground tests to be obtained before local treatment is employed and sulphonamides given by mouth—little trouble is experienced with these cases and the vast majority of lesions heal well. I did see, however, in a Mission Hospital in Nigeria, a man whose penis had entirely sloughed off as a result of phagogenic ulceration.

Sulphonamide powder was used in the main for local application and no abnormal skin reactions were noticed. Associated buboes were not uncommon but, if aspirated when fluctuating, as a rule they resolved well with oral sulphonamide treatment. In obstinate cases in which the glands were not involved and the sore was on the shaft, the application of a few turns of plaster of Paris (the patient being discharged from hospital and told to return at the end of 5 days) was very helpful and was not attended by any unfortunate complications.

The usual Kahn tests once a month for 3 months were difficult to apply, owing to the large number of specimens showing some degree of positive reaction due to yaws. A clinical examination at the same intervals was more helpful, although difficulties arose from the fact that the defaulter rate was very high.

Of 100 consecutive cases of patients attending my own clinic and in which 3 negative dark-ground examinations had been obtained, 38 had tender adenitis, and buboes requiring aspiration developed in 7 and one burst spontaneously. Dmelcos tests were performed in 10 cases with 9 positive results. Kahn and Ide tests were done in all cases and the findings were extremely confusing. In 51 negative Kahn and negative Ide reactions were found and 49 showed some degree of positivity. Of the latter, 36 showed strongly positive or positive Kahn reactions, although the Ide reaction was also positive in only 21 and negative in 15; 11 showed weakly positive Kahn reactions, but in these cases the Ide reaction was also positive in 8 and negative in 3, 2 showing negative Kahn reaction with positive Ide reaction.

I can thus confirm the findings in East Africa, where Bettley concluded that only a negative Kahn reaction was of value in examining native troops in a yaws area. I realize that these cases were not investigated scientifically to the full extent but, considered as a group of dark-ground-negative sores, they nearly all cleared up quickly with oral and local sulphonamide treatment and generally gave little worry. The average stay in hospital of the 100 patients before they were fit for discharge was 12.5 days, the extremes being 4 and 44.

Lymphogranuloma inguinale

At the results of the treatment of lymphogranuloma inguinale I was pleasantly surprised. It was very common everywhere. The disease, which affected also Europeans—Stannus quotes a peace-time naval rate of 14 per 1,000 of those serving on the West Coast—was no menace to troops, in 1945 at any rate. I had few chronic cases and cannot remember “boarding” anyone out of the Army for this disease.

I aspirated and even incised buboes and they healed without difficulty. In one

place the medical officer even made long incisions into fluctuating buboes, and they, too, healed without trouble within 2-3 weeks; one of these was in a European patient. One can imagine that the disease obtained its bad reputation in pre-sulphonamide days when surgeons made wide excisions of the glands. Civil doctors who were "old coasters" told me that it was a different proposition in the pre-sulphonamide era and that the bad reputation belongs to the age of over-interference.

Frei's antigen was made locally from bubo fluid; a positive result in the negro, consisting of a palpable button, was felt rather than seen. The test was of little real help in the diagnosis, as, if no other cause of painful inguinal adenitis could be found, the disease was nearly always lymphogranuloma inguinale. Tests in a large percentage of African cases gave a positive result anyway, as a sequel of past infection. The small sore (or traces of it) was present in about a quarter of the numbers of cases, and the glands often became enlarged within a week of its appearance, although longer periods (1-2 months) were noted. The glands were at first shotty and tender, enlarging and matting together in a hard tender lump and becoming fluctuant; if untreated, they burst and left an ulcer in the groin the size of a shilling or more, which took up to two weeks to heal. When the ulcer was healed there was the likelihood of a small discharging sinus and the possibility of a relapse on the same or the other side. Sometimes the femoral glands only were affected; if no other primary lesion on the legs or feet was discovered and if the Frei test was positive (although this may have been due to a previous infection), these cases were diagnosed and treated as lymphogranuloma inguinale. Generalized constitutional disturbance, with pyrexia, sweating and malaise, was sometimes present, but not as a rule sufficient to keep an African patient in bed. Indeed few diseases, unless accompanied by coma, could do so for long.

Treatment was general rather than local. Hot fomentations, glycerin and ichthammol and the like, on the buboes appeared to be ineffective, messy, and expensive as regards material and time, and were not used by me. Ulcerated groins were, as a rule, treated with sulphonamide powder, and dry dressings were applied.

Sulphonamides by mouth, 5 grammes daily for 4 or 5 days, were employed. All types of sulphonamide appeared to be effective. At the end of this time, should the glands still be tender, antimony in the form of Anthiomaline, was given on alternate days for 4-5 doses. Fluctuant glands were aspirated with an intramuscular needle as they arose. If these measures failed a further course of sulphonamides with two intravenous injections (50 million and 100 million respectively) of T.A.B. vaccine (antityphoid-paratyphoid vaccine) were given on the second and fourth days.

Penicillin was tried, and in small doses of 200,000 units or so was effective in 60-70 per cent of cases, but it was not as successful as were the sulphonamides. Better results were obtained from larger doses of 1,000,000 units. I do not consider that penicillin will usurp the place of sulphonamides in the treatment of this condition.

Rectal strictures occurred in females. There were several in-patients attending the civil hospital at Freetown and I was shown two in Zaria in northern Nigeria.

Of 120 consecutive cases in my own clinic, 54 were left-sided and 48 right-sided; in 18 the infection was bilateral. In 24 the buboes had to be aspirated, whereas 12 burst spontaneously in 4 instances before admission of the patient to hospital. Of the aspirations 22 were done within 5 days of starting treatment. Thus the rate of discharging groins was 30 per cent.

Frei tests were done in 42 cases with 35 positive results.

Of these 120 patients, 80 received sulphanilamide, 30 sulphadiazine and 10 sulphapyridine, and 60 (50 per cent) also received Anthiomaline. In 13 cases persistent sinuses developed and the patients received a second course of sulphonamides with intravenous T.A.B. vaccine.

Evidence of arthritis developed in 2 patients; in one, the knee and in the other the small joints of the hand were affected. Arthritis has been described as occurring in this disease, but whether in these cases it was due to an otherwise undetected gonorrhoea, to yaws, or to some other condition, I would not venture to say.

There were 8 relapses occurring between 3 and 56 days after discharge; 6 were on the same side and 2 were in the opposite groin.

The average time before the patient was fit for discharge from hospital was 9.1 days (shortest 4 and longest 32).

Of the penicillin-treated cases, 10 were treated with a single injection of 100,000 units in oil and beeswax. Of these 5 cleared up in an average of 6.1 days, and there were 4 immediate failures and one relapse. Two injections of the same amount were

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given to 15 patients and 10 cleared in an average of 5 days. There were 3 failures and 2 relapses in this group. This seemed to indicate that the dose used was too small, so 1,000,000 units were employed for two European patients with very successful results; both patients were fit for discharge within 6 days (Willcox⁴). Unfortunately I was not able to pursue this experiment further.

Intravenous T.A.B. vaccine was well tolerated by the African and was used extensively by me in the treatment of gonorrhoea before penicillin arrived. It was a good deterrent against self-aggravation of the discharge, which was common. About 50 per cent of patients receiving it showed some signs of liver damage, as judged by the urine and blood laboratory findings 24 hours after the injection. In a small number only jaundice then developed. An attempt was made to transmit the infection from these patients by means of intravenous serum, and of faeces and urine administered orally, with inconclusive results.

Other venereal diseases

Balanitis and condylomata acuminata were not infrequently seen but, taking into consideration the religious ban on circumcision in many tribes, they were less common than might have been expected. Non-specific urethritis, as such, seemed to be less common than in Great Britain, but, in the face of the enormous amount of gonorrhoea, it was a difficult thing to diagnose with certainty. I was able to find *Trichomonas vaginalis* in several of the comparatively few women examined. Pediculosis pubis and scabies (with the usual genital lesions) were fairly prevalent. Of the rarer conditions, goundou and gangosa, both late manifestations of yaws, were rarely seen in the Army; as for granuloma venereum, I saw only one text-book case in a civil hospital in northern Nigeria. I had no such case in my own department and saw none on my visits to other military establishments.

Self-inflicted lesions

Dishonesty in regard to property is rife in West Africa. Similar dishonesty exists, on a large scale, in the production of self-inflicted lesions in order to avoid fatigues, to postpone imprisonment or discharge from hospital, or to try to get out of the Army. This self-mutilation takes many forms.

Urethral discharge.—Toothpaste, prophylactic tubes, whitewash, ointments and the latex of certain plants, such as euphorbia, are the commonest agents employed; actual gonococcal pus is sometimes used by prisoners in the guard room.

Penile sores.—These are usually manufactured with battery acid or plant juices, and again euphorbia plays its part. If carelessly done, as is often the case, the scattered auxiliary lesions make naked-eye diagnosis easy. If carefully done, they may be difficult to distinguish from chancroid. If situated on the shaft of the penis, they heal rapidly when covered by a few turns of plaster of Paris bandage.

Conjunctivitis.—This is another frequent self-inflicted lesion and, occurring in someone already having gonorrhoea, is difficult to diagnose. Swollen knees, too, the condition induced by trauma or by the insertion of hypodermic needles, are presented in a bold bid for discharge from the Army.

Other tropical conditions

Several other tropical conditions impinged on the venereal field, of which a few may be mentioned.

Bilharzia.—This was common in many parts, and the passing of blood-stained urine, especially when a patient was receiving sulphonamides, always called for careful examination. If the urine did not contain any sulphonamide crystals, bilharzial ova could usually be identified in one or two subsequent specimens.

Filariasis.—In the taking of routine malaria films on the admission of patients to hospital, it was not uncommon to find microfilariae—usually of *Loa loa*—in patients not showing any symptoms. On two occasions I was so fortunate as to see the adult *Loa loa* migrating across the conjunctiva, and in another the microfilariae of *Loa loa* were seen during an examination of the urine in a case of haematuria. Obviously a man with a giant scrotum was never admitted to the

Army, but in the hospital wards a number of cases were seen with genital oedema of a lesser extent. Microfilariae—usually of *Loa loa*—were demonstrated in the large majority of these and the attack, which was often not the first, usually subsided in about a week (Willcox³). In one of them the lymphatic-borne microfilariae of *Onchocerca volvulus* was demonstrated by means of a skin scraping. This latter infestation often manifested itself by the occurrence of hard resilient swellings, about the size of an olive or smaller, over the iliac crests or sometimes in the inguinal region, which, if they were excised, were found to contain the adult worm. The blood film showed no microfilariae, but a skin scraping showed them very well, and the live microfilariae which inhabit the lymphatic vessels could be seen clearly. Their presence in the eye leads to a great deal of blindness in the northern territories of the Gold Coast.

Tumbu fly.—This fly (*Cordylobia anthropophaga*) lays eggs on the ground; these are picked up by clothing should it be dried there. Subsequently the larvae burrow into the skin and a chrysalis develops in 10–12 days, the presence of which, with scratching and infection, leads to an infected sore with considerable inflammation round it. I saw one of these larvae expressed from the glans penis of a European patient, who had consulted me 10 days previously, complaining of having been bitten by an ant. Occasionally they were expressed in the course of squeezing a scrotal sore for a dark-ground examination.

Guinea-worm (Dracunculus medinensis).—These worms occasionally invade the genital area. One sometimes feels calcified guinea-worms alongside the epididymis and their presence can be confirmed by radiography. Sometimes, too, guinea-worm larvae can be seen microscopically in the discharge from a scrotal sore.

Scrotal infections.—A pyogenic infection of the scrotum, which heals rapidly after incision and evacuation of much pus, is not uncommon in the African Negro. Whether these sores are due in the first place to the tumbu fly, the guinea-worm, self-infection or some other cause is not known; probably one or other plays its part in individual cases.

Hydrocele.—This condition, too, is common in the African; considering the great prevalence of gonorrhoea it is not surprising.

Preventive measures

Perhaps the most alarming factor of all is the general failure of all known methods of prophylaxis in the African. Sheaths were tried in one unit (1,200 strong) in Accra, in a controlled manner. They were issued in profusion, in the knowledge that they would probably be sold by the patients, and much propaganda was used. In effect, in 4 months the venereal disease rate was halved as compared with the previous 4 months (from 250 to 120 cases) at a cost of nearly 4,000 sheaths. In many places, however, the natives will not use a sheath for fear of “losing power”, and the women generally refuse to tolerate them, even to the point of breaking them before use, so strong is their constant desire to be pregnant. “E.T.” tubes disappeared in large numbers when made available; possibly they were taken to produce self-inflicted discharges when the need arose.

Prophylactic centres were a failure. In one unit, in which they were tried energetically, 40 per cent of the men had gonorrhoea by the time that they used the room. They used it only to protect themselves from disciplinary action before reporting sick. In another unit every man out “on pass” was given compulsory “E.T.” tube prophylactic treatment on his return, whether exposure were admitted or not. However, owing either to men leaving without passes, to women being brought in, or to lack of diligence on the part of the African orderly, there was no reduction in the venereal disease incidence in that unit over a 3 months trial. In another unit in which the “E.T. Room” was used enthusiastically—there being between 20 and 30 users a night with a full-time African orderly on duty—there were over 300 cases of venereal disease in 3 months. The prophylactic administration of sulphathiazole was tried in 3 places, in one place apparently with success and in one with indifferent results; in the third the experiment was a failure. As, too, a man only had to say that he had had sexual intercourse the

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previous night and thus escape a morning's training to get his medicine, the scheme was not appreciated by commanding officers.

The problem—and its solution ?

Thus, with an untreated, heavily infected female population and with a virtually complete failure of prophylaxis in the male, we are faced with a grave and even gigantic problem. In addition, the mobilization of an army in West Africa has caused a large-scale and widespread redistribution of population with an increased dissemination of the disease. Therefore the already vast problem is likely to increase further and further both in numerical and geographical extent. So far the medical authorities of the four colonies find themselves unable to tackle the situation ; indeed, in many areas they declare themselves to be defeated before they have started. Postponement of dealing energetically with this medical scourge is only making action more difficult each month that it is neglected. Each month the bill that will have to be paid mounts higher.

As the army withdraws from West Africa, venereal disease will become solely a concern for the Colonial Medical Service, and, when it is tackled, it will be beyond the powers of the Colonial Medical Officers already stationed there and engaged on other duties. The problem will not be solved by opening a few clinics here and there. It will have to be tackled as would an epidemic, with maps and mobile diagnostic and treatment centres ; with teams of doctors and orderlies doing a full-time job, administering penicillin, treating village by village, town by town, until, slowly and surely, each colony is cleared to such an extent that local hospitals can cope with the residue.

That, I fear, will be the only way by which venereal disease will be controlled in these Colonies ; it has become too great a scourge for other measures even to hope to succeed, and yet such measures are, I regret to say, too utopian at the present time. For the present the best line is to concentrate on making one class of African reasonably clean—that is the educated Africans. Teach them in the schools and in the universities, and by all other means possible, how to dislike and avoid venereal disease and where to get treatment if they become infected with it. Then, slowly, as the clerks, the telegraphists and the printers emerge from their technical training, they will also be " V.D. conscious ". Then one day, perhaps, gonorrhoea will be regarded as an unpleasant disease to be rid of and not as a rather annoying variant of normality.

A portion of the material presented above has appeared in *Nature* (Willcox³).

The history of the colonization of West Africa is taken largely from material published by the Colonial Office of Great Britain and by the Governments of the four Colonies, Gambia, Gold Coast, Nigeria and Sierra Leone, also from *European Beginnings in West Africa 1454-1578*, by J. W. Blake.

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